forest research note

1979 No. 20

Plantation Performance Averages for Jack Pine

by

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In graphical form this paper presents average survival and height growth of jack pine (*Pinus banksiana* Lamb.) in research plantations across Ontario. Previous notes have given similar graphs for white spruce (*Picea glauca* (Moench) Voss) (Mullin 1978a), red pine (*Pinus resinosa* Ait.) (Mullin 1978b), white pine (*Pinus strobus* L.) (Mullin 1978c) and black spruce (*Picea mariana* (Mill.) B.S.P.) (Mullin 1978d). It is hoped that the information may be of value to the forest managers in assessing the success or failure of the plantations in their areas.

The data in Figure 1 are averages of survival percent, total height and aggregate height for the control (untreated) plots of research plantations which had at least 50% survival at 5 years after planting. All the plots contained 500 trees or more, were planted by local crews using the usual procedures of the time, and had a planting density of about 2950 trees per hectare.

There were only 14 plantations available for jack pine, much fewer than for the other species, and hence no calculations of standard error were done. The plantations were all selected as suitable for jack pine planting and all are within the natural range of the species, except for two locations in southern Ontario. The period covered, 0 to 20 years, is the same as the establishment and closing sequences for a planted stand. This is the period preceding that usually found in yield and volume tables. The projections to the 20th year (dotted lines) are freehand curves as no data were available, and they represent stands in which no thinning has been done. The height growth of the 2+0 plantations corresponds approximately to Site Index 40, that of the 2+1 to Site Index 50 for natural jack pine stands (Benzie 1977). This might indicate that our plantation growth is falling far short of its potential.

Comparative testing of any plantation against these averages requires only an assessment by any valid sampling procedure of survival percentage (or of number of trees per hectare directly) and average height. These curves will require adjustment by region, site index or site class as more information becomes available.

Ontario Ministry of Natural Resources

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A communication of the Ontario Forest Research Centre to aid management of Ontario's forest land resource. Further information may be obtained from: The Head, Ontario Forest Research Centre, Ministry of Natural Resources, Maple, Ont. L0J 1E0.

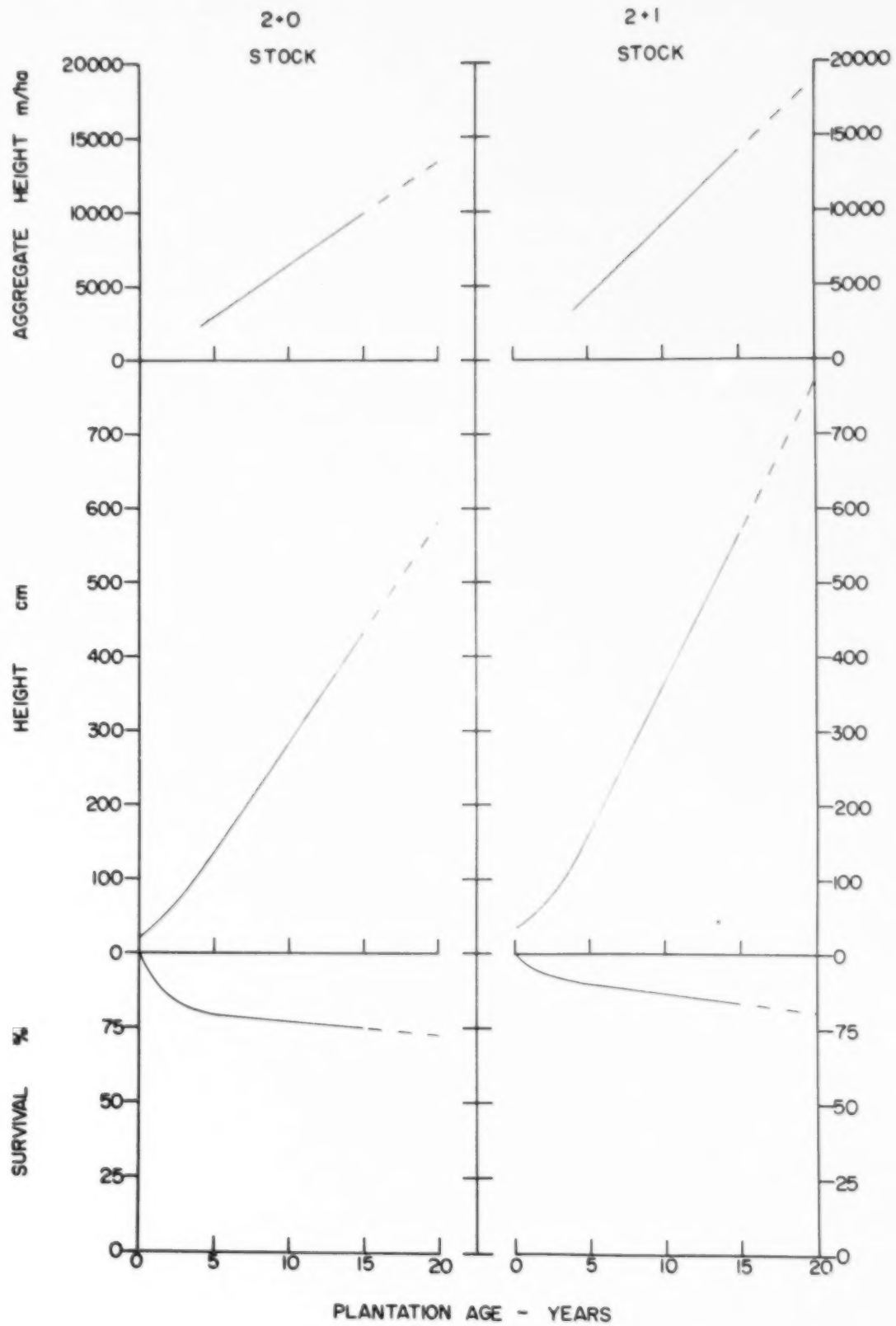

Figure 1 Average performance of jack pine plantations.

The averages shown could be used to establish arbitrary minimum success levels for judging individual plantations. Failure to reach these standards would require immediate plans for treatment or replacement. The suggested minimum level for all species has been 75% of any criterion.

References

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